

Minutes
Contra Costa County IPM Advisory Committee
Subcommittee on IPM Decision-Making
September 26, 2019

Members Present: Larry Yost, Andrew Sutherland (Chair), Jim Donnelly, Susan Captain

Members Absent: None

Staff Present: Jill Ray, Supervisor Andersen's Office, Wade Finlinson, IPM Coordinator

Members of the public: Karolina Parke (PASE), Susan JunFish (PASE), Dave Shoemaker (PASE), Karen Perkins, (PASE), KO (Bahr Bee Ranch)

1. Introductions

2. Public comment on items not on the agenda

Karolina Park referenced comments made by Public Works staff in the August 8 Subcommittee meeting regarding the eradication of *Dittrichia* in roadways by hand not being feasible or cost effective. She requested that an article by Chuck Morse published in the Cal-IPC News be added to the record for this meeting. That article is attached and can also be retrieved from https://www.cal-ipc.org/docs/resources/news/pdf/Cal-IPCNews_Spring2013.pdf

Susan Captain shared an article from the September 8, 2019 issue of Ag Alert about automated weeders. Article is attached. She also circulated information about rodent birth control being used as an alternative to rodenticides. She cited a case study from the City of St. Louis who lowered rat populations by using ContraPest® and is interested in potentially doing a trial of the product on her property. St. Louis Case Study is attached. Additional information available at <https://senestech.com/>

Susan JunFish-passed out updated PASE priority list for CCC IPM Program; would like to have a discussion on which items we agree with/don't agree with in a future subcommittee meeting. The priority list is attached. She also encouraged the subcommittee to have meetings where a more extensive dialog can take place by allowing more time on the agenda when the occasion requires it.

3. Approve minutes from August 15, 2019

A motion was made and seconded (JD/AS) to approve the minutes with several corrections as proposed by citizens, subcommittee members, and staff.

Ayes: Captain, Donnelly, Sutherland, Yost

Noes: None

Abstain: None

Absent: None

Public Speaker: Susan JunFish

4. Discuss IPM Committee referral regarding changes to the subcommittee's final report

After Andrew Sutherland referenced the full committee discussion and subsequent approval, he detailed the proposed changes. A motion was made and seconded (JD/SC) to approve the changes as recommended by the full IPM Committee.

Ayes: Captain, Donnelly, Sutherland, Yost

Noes: None

Abstain: None

Absent: None

Public speakers: Susan JunFish, Karen Perkins, Dave Shoemaker

Citizen comments involved a request that the document should include total pounds of bait per acre and that the sentence referring to .69 lb is misleading. Members of the subcommittee responded that acreage data is not always tracked but related information is available in the ground squirrel decision document. Another comment centered on a desire to see how ground squirrel poison affected wildlife through secondary poisoning. It was also observed that aluminum phosphide still appears on the chemical inventory and a committee member clarified that it is only used to protect the inventory of rodenticide bait and not used on roadsides.

Final version of the subcommittee's final report is attached.

5. Review glyphosate usage by County Departments and discuss potential next steps

Wade Finlinson presented information from the attached slides and clarified how the data was retrieved and compiled. Subcommittee members expressed an interest in creating a new decision document that helped to manage vegetation at some of the locations where there appeared to be a heavy reliance on post emergent application of glyphosate-based herbicides. The facilities that saw the highest glyphosate usage in 2018 included the West County Detention Facility, the Marsh Creek Range, and Juvenile Hall. A desire to compile additional information about the highest use sites was expressed and Wade Finlinson agreed to perform site and program-specific analysis to present at the next meeting of the subcommittee. The subcommittee acknowledged the need to carefully assess the issue in order to produce an effective decision document.

Public speakers: Karen Perkins, Susan JunFish

Citizen comments included a suggestion to avoid bare earth and instead look for cover crops and other options. A concern was expressed regarding unwanted glyphosate exposure of inmates, workers, deputies, and others who spend time at these locations.

6. Discuss priorities for the subcommittee

Item tabled by the Chair due to time constraints

7. Hear report from Wade Finlinson, IPM Coordinator (5 minutes)

Wade Finlinson declined to report due to the time constraints

8. Plan next meeting agenda

The next meeting will be October 31, 2019, 1:00 pm to 2:15 pm.

- Report from Ag Department regarding how to move forward with CO and other ground squirrel treatment alternatives (15 minutes)
- Report from the IPM Coordinator-follow up regarding glyphosate use in County operations (35 min)
- Discuss priorities for subcommittee (20 min)
- Regular business (20 min)

Public speakers: Susan JunFish requested longer meetings where all action items can be addressed. She also offered to research alternatives and asked for morning meetings to allow for more PASE members to attend.

The subcommittee generally discussed the timing of its' meetings and noted that early afternoon is preferred by most of the members. It was also acknowledged that the regular IPM Advisory Committee meetings are held in the morning to accommodate the attendance of those who are not usually available in the afternoon.

Mendocino County stops northbound stinkwort

By Chuck Morse, Mendocino County Agricultural Commissioner

In October 2010, the Mendocino County Department of Agriculture was notified by a local weed warrior and member of the Inland Mendocino County WMA that they had found a significant stinkwort (*Dittrichia graveolens*) infestation near Willits. This was our first indication that stinkwort had arrived in the county. We surveyed the immediate area and mobilized the next day to hand-pull all the plants, enough to fill 34 garbage bags.



Stinkwort around a reservoir in Santa Clara County. Photo by Eric Wylde.

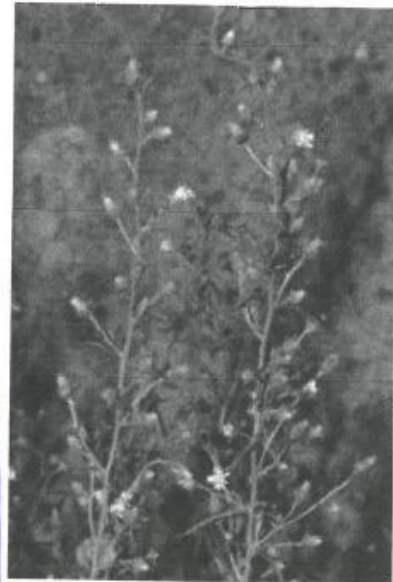
We quickly surveyed our major highway corridors (Hwy 101 and Hwy 20). We found infestations along our southern border with Sonoma County northward to the town of Hopland, but fewer plants north of Hopland, and only a few lonely pioneer populations north of Ukiah up to nearly the Humboldt County line. We realized that we were at a point where we could possibly control the plant versus having it overwhelm our ability to control it. As the leading edge of the stinkwort invasion heading north from the Bay Area, we decided to try to stop its spread.

In late summer and fall of 2011, the Ag Dept. went "all in" to stop the spread and dramatically reduce the population of stinkwort. Low speed highway-edge survey and spot treatments were employed to address any plants found. The late

and extended maturation of this plant necessitated three survey/treatment passes per season to capture all the plants as they matured. Many locations required extensive work beyond the road edge where the stinkwort had infested larger waste areas and road cuts associated with the highway. Pioneer populations were hand-pulled by the Ag Dept. or were treated by private landowners after learning about this invasive weed.

Last year, our crews once again went on the hunt for stinkwort. It was a pleasant surprise to see a noticeable decrease in the overall population densities compared to 2011. The same protocol of repeated survey and treatment was employed in 2012. We found that the months of July, August, September, and October constitute the treatment window. Any sooner and this late-maturing plant is easily missed. Any later and you're into post-bloom/mature seed territory.

This Asteraceae species sets mature seed very quickly after bloom, so dealing with it pre-bloom is almost a necessity. In both 2011 and 2012, the Ag Dept. spent over 200 man-hours/year on stinkwort. This represents a significant commitment and demonstrates how serious we are about



Dittrichia graveolens. Photo by Bob Case.

not allowing stinkwort to become established in Mendocino County. In 2013, we will once again survey and treat stinkwort. We are hoping for dramatic reductions in population numbers after two full years of the program, as we have done everything within our means to prevent new seed production.

Contact the author at morsec@co.mendocino.ca.us. California Agriculture published an article on the expansion of stinkwort in its April-June 2013 issue, available at californiaagriculture.ucanr.org/archive.cfm.



Bags of removed stinkwort removed as part of "rapid response" effort in Mendocino County. Photo by Chuck Morse.

VEGETABLES®

A SPECIAL GROWERS' REPORT OF AG ALERT®



Photo/Steve Fennimore

Steve Fennimore, right, extension specialist with the University of California, Davis, says automatic weeders like the Robovator shown here will help ease the shortage of skilled employees needed for hand weeding.



Photo/Rob Johnson

Automated weeders are attracting more interest

By Kathy Coatney

Weed control is a continual struggle for vegetable growers, particularly hand weeding. Hand weeding is a major expense for crops like lettuce, and accounts for about 50% of the weed control costs for growers, according to Steve Fennimore, extension specialist with the University of California, Davis.

There are three factors driving automation in vegetable crops: Need due to employee shortages, availability of the technology and no new vegetable herbicides.

"We have a tremendous labor shortage," Fennimore said.

In the 1980s, employees came from Mexico, in large numbers, but those days are gone, he said.

"It doesn't mean the end of people coming up here from Mexico, but it's not going to be like it was," Fennimore said.

The fact is, there just isn't enough labor, which impacts farming operations from weed control to harvest. This makes mechanization very important, he said.

The technology is here with robotic weeders, but as far as herbicides, most used in vegetable crops were registered 40 to 50 years ago, and there are no new ones coming down the pike, Fennimore said.

Small specialty crops like vegetables with small acreages discourage the agrochemical sector from investing and developing new herbicides, he said.

What this means to vegetable growers is, the priority for vegetable herbicides isn't even on the list for most agrochemical companies, Fennimore said.

With a reduced labor force and no new chemicals on the horizon, there is a lot of potential for robotic weeders for conventional and organic vegetable crop growers, he said.

"The automated weeders are real, they're happening, and they're in the field right now," Fennimore said.

Automated weeders don't need permission for use—other than from the grower, Fennimore reminded growers. There's no government agency overseeing it, so that makes it much more straightforward, he added.

Automation for weed control has two components—detection and actuation (how the weed is killed). Automatic detection most commonly uses two-dimensional image processing to differentiate the plant from soil by color or light reflectance to detect the crop from the weeds by size differences and crop row pattern.

Actuation has two methods. One is to spray the weed and kill it with an herbicide. The other is mechanical that uses a cultivator knife to remove the weed.

There are three methods of physical weed control that are compatible with automation, and they will work in conventional and organic operations: Mechanical intra-row cultivation, thermal weed control and abrasion—sand blasting.

See WEEDERS, Page 14

Weeders

Continued from Page 13

In the past, intra-row weeding has been done with hand weeding and selective herbicides. Currently, there are two designs for intra-row cultivators on the market.

One has reciprocating knives that reach in and out of the crop row using machine-vision guidance. The other has a rotating disk that is controlled by a vision system to detect the crop plant and align the disk cut-away section with the crop plant.

For best performance, machine-vision guided systems need a uniform, well-established crop, low weed pressure and crop plants that are larger than the weeds, Fennimore said.

Tractor-mounted robotic weeders have been around for some time, and they are controlled by a driver, he said.

There are several tractor-mounted robotic weeders commercially available: Ferrari Remowed weeder, RoboVator weeder, Garford In-row weeder and Steketee IC weeder.

Fennimore has used automated weeders on 20 different crops, from lettuce and broccoli to Brassica vegetables like bok choy, gaylon and radicchio.

"There's a possibility it could even work in cotton," Fennimore said, "but high density crops like onions, spinach and carrots are more challenging, and a new weeder design will be needed to deal with these crops."



This Steketee automatic weeder was on display at recent field day. Equipment like this is designed to remove weeds from row crops without damaging the crop.

Autonomous weeders are still in the development stage. Bosch Robotics has developed an autonomous weed control robot, called BoniRob. The robot is about the size of a compact car, and it is able to remove two weeds per second using laser-guided machine vision and GPS-based navigation.

Another robotic weeder under development is by ecoRobotix. The robot is also autonomous, solar powered and uses a weed crop detection system. It has two mechanical arms that selectively spray the weeds.

FarmWise has an autonomous weeder, too. A large, orange machine drives down

the rows of vegetables, identifying weeds and pulling them out with a hoe-like arm.

The FarmWise robot uses artificial vision to move through the fields to determine weeds from crop plants. The robot can recognize the plants in different stages of growth and different types of crops.

A field robot that is used for weeding could potentially have other uses, too. For example, it could scout for insects or foliar diseases, which could lower the per unit cost of the robot.

A cost breakdown is being developed, but as yet it isn't available, Fennimore said.

Robotics are a more expensive process, he continued.

"As the technology is developed, it will

get cheaper because there will be more competition, and there will be better machines," Fennimore said. "When I started doing this five, six, seven years ago, people just barely knew how to do it, and now they know how to do it."

There is a common misconception that these machines will replace herbicide treatments, he said.

"They might be able to do that, but that's not what growers are doing. In conventional fields, they're using the herbicides," he said. "What they're doing is, they're reducing the need for hand weeding."

Fennimore said there are several things that need to happen to overcome challenges in weed automation:

- Better crop/weed recognition to improve the technology.
- Public funding to support research in specialty crops.
- Development of crop-marking systems to improve machine-vision recognition of the crop, using a unique marker with breeding or a physical marker placed on the crop during transplanting.
- Improved physical weed control actuators like abrasives, cultivators, high-pressure water, lasers and propane flaming.
- Changing weed science curriculum to train undergraduate and graduate students on the basics of robotic weeding.

(Kathy Coatney is a reporter in Bend, Ore. She may be contacted at kacoatney@gmail.com.)

Advertorial

Importance of Calcium and Magnesium

Calcium (Ca) and Magnesium (Mg) are considered secondary macronutrients because they are less likely to limit yield than N, P, and K but are still needed in large amounts. Plants absorb the soluble ionic forms from the soil solution which is then replenished by the exchangeable and mineral forms of Ca and Mg. Calcium usually accounts for more than 70% of base saturation.

Calcium is relatively immobile in the plant so deficiencies often occur in the younger tissues first. Death of growing tips, root tips, blossom end rot or buds that drop too soon are common symptoms.

Deficient soil Mg is more common and often results in limited crop yields due to reduced photosynthesis. Deficiencies can be seen in the older leaves first with specific discoloration to the leaf tissue while leaving the veins green.

The NCRS publication referenced states there is no reliable or critical level of Ca recommended for soils (only for the plant). However, a short supply of soil Ca can be evident when there is poor water infiltration, high sodium levels, surface crusting and low pH. Test your soils and talk to your crop advisor this fall.

Ca++

- Aids in pollen development.
- Strengthen cell walls reducing bruising and disease.
- Helps give longer shelf life.
- Essential for plant growth, cell division and enlargement.
- Important for developing root system, shoot tips and storage organisms.

Mg++

- Important for plant metabolism and protein synthesis.
- Activates enzymes and chlorophyll.
- Aids in formation of sugars, oils and fats.
- Deficiencies are more common than Ca.



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Agricultural Market Review

Quotations are the latest available for the week ending September 13, 2019

	Year Ago	Week Ago	Latest Week
Livestock			
Slaughter Steers - 5-Area Average			
Select & Choice, 1050-1150 lbs., \$ per cwt.	107-108	100-108	100
Hogs - Average hog,			
51-52% lean, Iowa-Minn. market, \$ per cwt.	51.82	62.13	57.30
Slaughter Lambs - \$ per cwt.			
125-175 lbs. National weekly live sales	119-157.64	140-170	140-170
Field crops - basis prompt shipment			
Barley - U.S. No. 2, \$ per cwt.			
Truck, Stockton-Modesto-Oakdale-Turlock	No Quote	No Quote	No Quote
Cotton - \$ per lb., Middling 1 3/32"			
Fresno spot market	77.91	62.61	65.68
Corn - U.S. No. 2 yellow \$ per cwt. trucked	8.40	9.39	9.54
Alfalfa Hay - \$ per ton, quality*, FOB			
Region 1, Northern Inter-mountain	No Quote	165-185 (P/S)	185-195 (P/S)
Region 2, Sacramento Valley	220-225 (P/S)	180-200 (G/P)	200-210 (G/P)
Region 3, Northern San Joaquin Valley	230-280 (S)	220-230 (P/S)	190-265 (P/S)
Region 4, Central San Joaquin Valley	No Quote	190-225 (F/G)	190-230 (F/G)
Region 5, Southern California	265 (P)	270 (P)	225-270 (F/G/P)
Region 6, Southeast Interior	215-220 (P)	195 (P)	155-165 (F/G)
Oat Hay - \$ per ton, quality*, FOB			
Northern California, dairy	No Quote	No Quote	No Quote
Oats - U.S. No. 2 white, \$ per cwt.			
Statewide, trucked price	No Quote	No Quote	No Quote
Dry Beans - Grower FOB prices			
Baby Limas, \$ per cwt. (sacked)	No Quote	No Quote	No Quote
Large Limas, \$ per cwt. (sacked)	No Quote	No Quote	No Quote
Blackeye, \$ per cwt. (sacked)	No Quote	No Quote	No Quote
Rice - Milled No. 1 Head, FOB No. Calif. mills			
Medium grain, \$ per cwt.	39-42	36-39	37-39
Wheat - U.S. No. 2 or better, winter, \$ per cwt.			
13% protein, Los Angeles, trucked price	No Quote	No Quote	No Quote

Provided by the California Farm Bureau Federation as a service to Farm Bureau members. Information supplied by the U.S. Department of Agriculture's Market News Branch.

*ADF=Acid detergent fiber; (S) = Supreme/<27%ADF; (P) = Premium/27-29; (G) = Good/29-32; (F) = Fair/32-35.



ContraPest®

CITY OF ST. LOUIS: A CASE STUDY

ContraPest successfully suppressed rat infestations as part of an IPM program in the revitalized city of St. Louis.

ContraPest® is registered federally as a General Use Product when used as directed. However, in some states, due to applicator expertise, it is a Restricted Use Product. Please check with your local state regulatory agency to determine restriction status. Read and follow all label instructions for target species Norway and roof rats.



OVERVIEW

The City of St. Louis, home to major corporations such as Anheuser-Busch, Boeing Defense, and the Cardinals baseball franchise, has undergone a multimillion-dollar revitalization facelift in early 2019, beginning with Kiener Plaza in downtown St. Louis. Kiener Plaza, named after the U.S. track team Olympian held in 1904, Harry J. Kiener, is a 1.9-acre park originally dedicated to the city in 1962. The newly renovated upscale, multi-use open space, houses businesses, playgrounds, fountains, and public art, and hosts community events such as parades, rallies, and festivals.

As a result of this type of re-development activity, the presence of refuse, nesting materials, and other factors make the presence of rats a given. The City of St Louis, The Gateway Arch Foundation, and Great Rivers Greenway endeavored to rid the area of the rodents.

THE SOLUTION

The first attempt to combat the problem, using a solution other than ContraPest, was to burrow bait throughout the plaza and surrounding areas for a little over a month. This did not have significant results and posed a risk to the public.

ContraPest® is registered federally as a General Use Product when used as directed. However, in some states, due to applicator expertise, it is a Restricted Use Product. Please check with your local state regulatory agency to determine restriction status. Read and follow all label instructions for target species Norway and roof rats.

When Missouri Pest Consultants were asked about ContraPest and the city's favorable outcome, Terry Hoselton remarked,

"I would use this on every account that has rats. Why would you want them to continue to populate while you are trying to solve a problem? It should be your first choice in any sensitive account with pets, children or public use. The key is, you don't even have to use rodenticides."

THE CONTRAPEST SOLUTION

Because of the risks that lethal rodenticides pose to the public, the use of these types of rat controls was a major safety concern. To improve Kiener Plaza, the City of St. Louis hired Missouri Pest Consultants to use a more integrated pest management approach to tackle the problem.

The first step was to flag all rat burrows in the area, identifying the active ones. Missouri Pest Consultants identified more than 75 active burrows in one small section of Kiener Plaza, a park that is less than 1 acre in size.

Empty bait stations were placed throughout to overcome neophobia in rats. Over the next few weeks, ContraPest was deployed and used exclusively for approximately 45 days.

SUMMARY

When no new rat activity or new burrows were observed by the City of St. Louis or Missouri Pest Consultants, a rodenticide was added to eliminate the now stabilized population. After two months, all marked burrows were determined inactive, and no new burrows were identified. ContraPest should continue to be applied as a long-term solution for best practice, as a prophylactic to avoid re-infestation.

ContraPest® is registered federally as a General Use Product when used as directed. However, in some states, due to applicator expertise, it is a Restricted Use Product. Please check with your local state regulatory agency to determine restriction status. Read and follow all label instructions for target species Norway and roof rats.



ContraPest is a proven solution that targets the reproductive capabilities of Norway and roof rats. By reducing reproduction, ContraPest can be the anchor to your Integrated Pest Management (IPM) program and magnify the success of your IPM methodologies. For customers looking to reduce or eliminate their use of lethal methodologies, ContraPest also offers you a stand-alone non-lethal solution to bring rat populations down and keep them down.

FOR MORE INFORMATION

Contact our Technical Support Team

EMAIL: technical.services@senestech.com

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CSSTLOUIS01_MLTRJUN2019

PASE's Priorities for Improving the CCC IPM Program in 2019- 2020

A	B	C	D	E
Reduce Worst Pesticide Exposure Risk	Accurate and Prompt Information Access	Investigate Best Practices by other Agencies, Contractors & CCC Current Practices.	Accountability, Transparency & Collaboration w/ Public	Conduct Outreach and Education to Staff and Community per Policy
<p>1) Phase out or Reduce pesticide usage in areas where people, pets, wildlife, and aquifers are likely being exposed:</p> <p>a) Rodenticide usage outdoors for ground squirrels - Ag & PWD.</p> <p>b) Herbicides in Grounds & Right of Ways (near county buildings, Flood Control District, Roadsides, vacant lots where kids play, and trails).</p> <p>2) Prioritize phase out of the Highest Toxicity Pesticides, which includes Bad Actors, Hormone Disruptors, and Injunction listed pesticides (endangered /protected species listed pesticides).</p> <p>3) Develop an Approved/Allowed Pesticide List such as those developed by the counties of Marin, San Francisco, and Santa Clara counties. Staff can choose amongst least toxic alternatives when non-chemical options have been demonstrated and documented to fail or help</p>	<p>1) Posting online of pesticide applications 72 hours prior to application of pesticides as well as onsite at every major entry point before application.</p> <p>County has posted 3/6,000+ applications from 2012 - 2015 <i>online</i> and few <i>at sites</i>. Posted less than a dozen in each 2016 & 2017, although committed to posting since 2009.</p> <p>2) Posting online of pesticide use reports from <i>each program</i> simultaneously as they are generated for county/state.</p> <p>3) Include in annual report, site specific comprehensive tracking of <i>each program's</i> progress through consecutive years, including all methods used.</p> <p>4) Post progress of pesticide usage by each program on website as well as annual report.</p> <p>Santa Clara County tracks usage and progress well and we could utilize their annual reports as an</p>	<p>1) Compare the method used by neighboring counties of Marin, S.F., and Santa Clara for the same pest problems.</p> <p>E.g. burrowing rodents over specific acreage, right of ways weed control acres/miles, public parks numbers/acres for burrowing rodent and weed control; Invasive aquatic and terrestrial weed control.</p> <p>2) Costs for Right of Ways weed and Burrowing Rodent control need more info how conclusions were drawn in the Decision Making Docs that justify not using safer alternatives.</p> <p>PASE written requests for staff to provide supportable data on cost calculations have not been answered.</p> <p>3) Investigate and correct protocols for county programs such as some Head Start pre-schools not being protected by the County's IPM Policy (when county rents</p>	<p>1) Reports made to the IPM Advisory Committee should include up to date changes in pest concerns, status of trials and pesticide usage from each program.</p> <p>2) Each Program should have at least one representative consistently attending IPM meetings per CCC IPM By-Laws.</p> <p>Currently the landscape program is mostly absent.</p> <p>3) Each IPM Advisory Committee member should confirm attendance or provide reason for absence to IPM Coordinator for each meeting per By-Laws. Many meetings have been cancelled due to lack of quorums.</p> <p>4) Community members on the IPM Advisory Committee should make final choices for the 5 speakers annually to reduce conflict of interest. Reasons for a decline or acceptance should be disclosed at least 2 months in advance.</p> <p>5) Chairing the IPM Advisory Committee should be rotated among community members who wish to chair. A Scribe should be independent of staff involved with the IPM</p>	<p>1) Budget and encourage staff to participate in local, low-cost or free conferences on pest concerns, status of our county's most challenging pest problems sponsored by neighboring counties and municipalities who have eliminated or seldom use Bad Actor and Injunction listed pesticides. Encourage staff and community participation per CCC IPM Policy by forwarding announcements to the list-serve & personally contacting key decision making individuals who can benefit from particular trainings. Include community members who sign in at IPM related meetings on the list-serve.</p> <p>2) Provide IPM conferences/workshops for staff and community for those pests that are the most difficult to control and incite the highest usage of pesticides and risk exposure to public health, pets, wildlife, aquifers, and other environmental mediums. Most outreach has been conducted for preventing structural pest problems since 2016 by CCC.</p>

A Reduce Worst Pesticide Exposure Risk	B Accurate and Prompt Information Access	C Investigate Best Practices by other Agencies, Contractors & CCC Current Practices.	D Accountability, Transparency & Collaboration w/ Public	E Conduct Outreach and Education to Staff and Community per Policy
<p>decrease risk of using unnecessarily higher risk chemical during a public health emergency.</p> <p>4) Pilot CO (carbon monoxide) of burrowing rodents, Steam Weeding and expand Grazing along Right of Ways including roadside using secure fencing.</p> <p>5) Institutionalize policy to prohibit glue-boards. Pestec reported ceasing usage ~ January 2018. But prohibition needs to be stated in the CCC IPM policy.</p> <p>6) Use PSP (inmates), WWP (alternate work pgm) or Conservation Corps in reducing cost of non-chemical methods. Town of Moraga has been saving tens of thousands of dollars every year utilizing free or nominal cost labor.</p>	<p>example of of how we can improve our reporting.</p>	<p>buildings).</p> <p>Currently, pesticides are used outside the auspices of the County IPM program in many buildings, including the Hazardous Materials building where IPM Coordinator is housed. PASE raised this issue since 2011.</p> <p>4) IPM Advisory Committee should evaluate pest control contractors annually. A strong IPM track record should be a minimum requirement. Currently there is little transparency and in past years, contractors were on payroll for decades applying on a schedule.</p> <p>The few NorCal goat grazing outfits can be contacted individually and asked to bid in addition to the contract being posted for two weeks in order to increase competition & lower costs.</p>	<p>Program to reduce conflict of interest.</p> <p>6) Video record all IPM Advisory Committee & IPM related meetings. Upload to IPM website for prompt & easy access to meetings, track community concerns, increase civility, and follow up by county. Carlos Agurto of Pestec offered to be Secretary in 2018 & have staff videorecord the full IPM Adv Comm meetings but recordings stopped in Fall, 2018 w/ no explanation from county.</p> <p>7) Evaluate the 2009 and 2013 IPM Ordinance issue documents written by Ms. Drlik and County Counsel and have Counsel provide <i>specific</i> responses to PASE's document of 2013 that referenced two erroneous citations of county and state statutes/laws, leading to erroneous conclusions that IPM Ordinance is both illegal and not efficacious. Other counties use ordinances.</p> <p>8) Incorporate into each Program Manager and Decision Maker's job description that they are responsible for innovative and least toxic pest control with promotions and raises linked to demonstrated efforts for improvement.</p>	

Report of the Decision-Making Subcommittee to the Contra Costa County IPM Advisory Committee.

Prepared by Andrew M. Sutherland, Subcommittee Chair, and Tanya Drlik, IPM Coordinator - August 2019

Members

Susan Captain, Jim Donnelly, Gretchen Logue (vice chair), Andrew Sutherland (chair), Larry Yost

The Decision-Making Subcommittee, as a service to the Contra Costa County IPM Advisory Committee and the residents of the County, works to document situation-specific pest management decision-making processes and to revise existing County decision documents. The subcommittee is charged with making recommendations that may improve the County's pest management processes while preventing or minimizing associated negative impacts.

Since our last report (September 2018), the Subcommittee has met eight times: November 6, 2018 and January 8, February 21, March 11, April 25, May 30, July 11, and August 15, 2019. Elections were held on February 21, with Andrew Sutherland elected as Chair and Gretchen Logue elected as Vice-Chair, both to serve until December 2019. For this report, recent activities have been grouped into three broad themes below: ground squirrel management by the Department of Agriculture, (generalized) vegetation management programs, and methods of communication and extension for the Subcommittee's recommendations.

Ground squirrel control by the Department of Agriculture

The subcommittee continued review of this pest situation and the associated decision document *Ground Squirrel Management for Critical Infrastructure*. This program is responsible for only the County use of anticoagulant rodenticides. In FY 2018-19, 0.96 lb of the active ingredient diphacinone was applied to control ground squirrels. The nontarget issues surrounding use of anticoagulants continue to be important to the County and its residents. The review process began on April 5, 2018 and continued formally until the decision document was approved (as revised) on March 11, 2019; the document is attached here. Key findings are as follows:

- The Agriculture Department manages ground squirrels as a service for the Public Works Department and, periodically, for other County entities through on-call services and vendor agreements. The decision document *Ground Squirrel Management for Critical Infrastructure* applies to services provided to Public Works. A related document, tentatively entitled *Ground Squirrel Management: On-Call Service*, remains to be created and reviewed by the IPM Coordinator and this Subcommittee.
- Fumigation (via gas cartridges, carbon monoxide, or carbon dioxide) is considered a very important alternative to anticoagulant rodenticide applications. The Subcommittee learned about various fumigation devices and products and interviewed several manufacturers and users. The Subcommittee worked with the IPM Advisory Committee to arrange two research presentations on carbon monoxide and carbon dioxide fumigation. Fumigation is most effective in spring when soil is moist. Agriculture Department staff are committed to weed management programs during spring. This labor shortage presents a major limitation to the adoption and widespread use of these alternatives by the Agriculture Department. Because of this limitation, the County has traditionally used diphacinone-treated grain bait to manage ground squirrels around critical infrastructure. Baiting is only effective from June through October when grasses are dry.
- Trapping, burrow destruction, burrow grouting, and conservation biological control (raptor perch programs) were considered as alternative management tactics. Several municipal agencies and other users were interviewed about these tactics. None of these appear to provide stand-alone control, but all should be considered as components of a robust integrated program for ground squirrel management in the County.
- The subcommittee decided to develop a decision tree that will be associated with *Ground Squirrel Management for Critical Infrastructure*. Work on this decision tree has not yet begun.
- Additional funding for the ground squirrel program will be needed to explore and implement alternatives.

Weed management programs

The Subcommittee continued some discussion surrounding vegetation management as conducted by the Department of Public Works along County rights-of-way. These programs have come under new public scrutiny due to recent litigation and public awareness of the broad-spectrum post-emergent herbicide glyphosate as a potential carcinogen. The Subcommittee reviewed these programs in detail during 2017-2018, culminating in

approval of two revised decision documents: *Weed Management along Roadsides* and *Weed Management along Flood Control Channels*. Both programs have been significantly impacted by staffing challenges within Public Works; it was reported that no pesticide use has occurred within these programs since October 2018. The Subcommittee met with Public Works staff members several times during this review period to discuss these programs. Key findings and recommendations are as follows:

- Access roads associated with flood control channels are an integral part of the right-of-way. Therefore, pesticide use reported on flood control channels includes access roads, and the associated decision documents attempt to capture decision-making processes and management tactics chosen along those roads. Several questions about pesticide use along access roads have been posed by the community.
- The Subcommittee will continue to engage the Public Works Department in discussion about vegetation management on rights-of-way, hoping to advise and clarify based on the two documents recently revised.

Communication and Extension of the Subcommittee's Recommendations

The Subcommittee conducted several discussions about how best to communicate our recommendations to County decision makers. Our recommendations are captured within decision documents we review and in our annual reports, but we wonder if these are received and seriously considered by Department heads, the Board of Supervisors, and other decision makers. We outlined a process by which members of the Subcommittee may report directly to the Board via the Transportation, Water, and Infrastructure Committee. Several Subcommittee members expressed interest, and we may follow the process outlined in the future. During this review term, the sitting IPM Coordinator retired. The subcommittee will work with the incoming IPM Coordinator to identify processes and pathways by which we might extend our recommendations more broadly and impactfully.

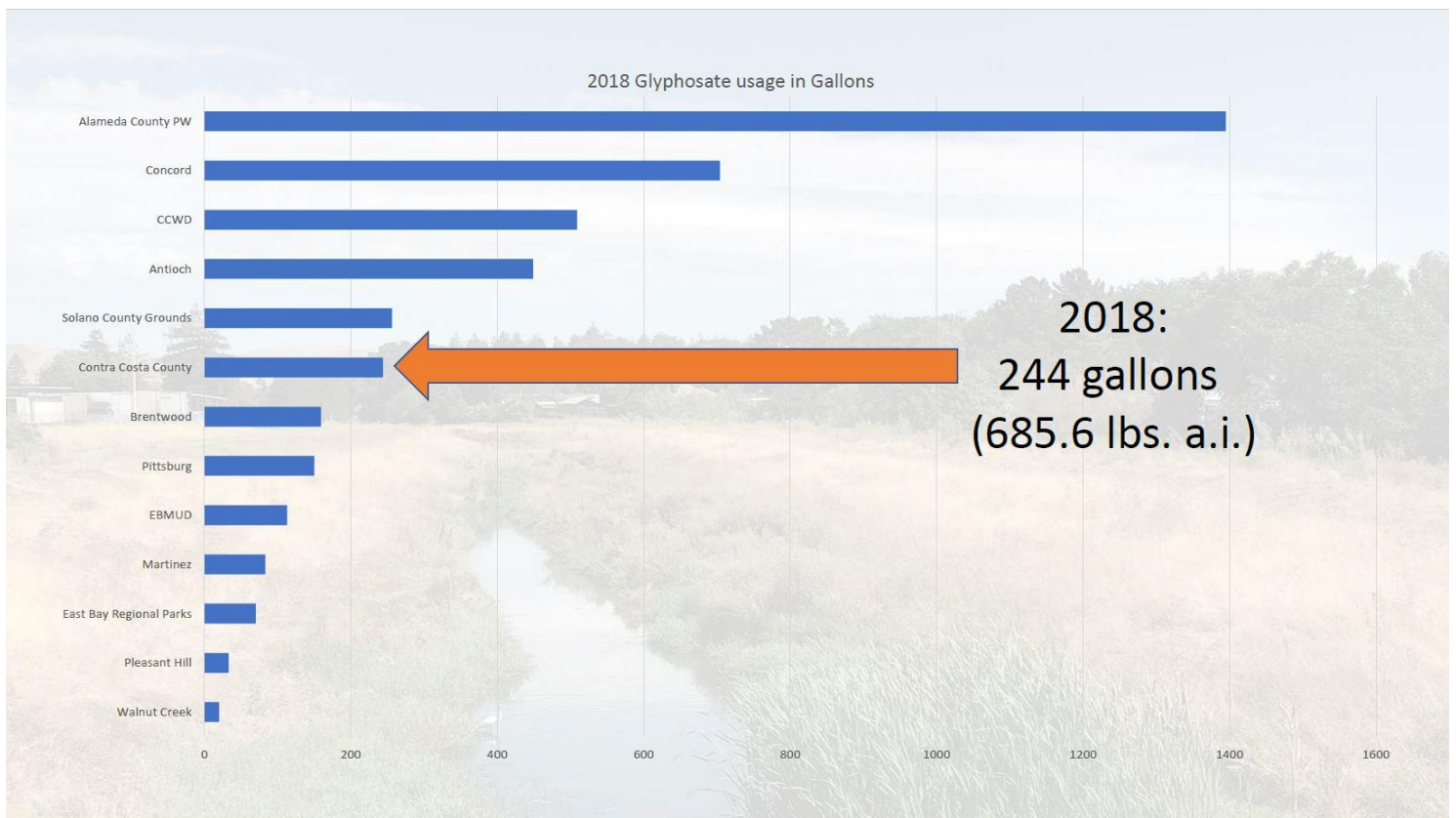
Subcommittee Recommendations

The Decision-Making subcommittee recommends the following:

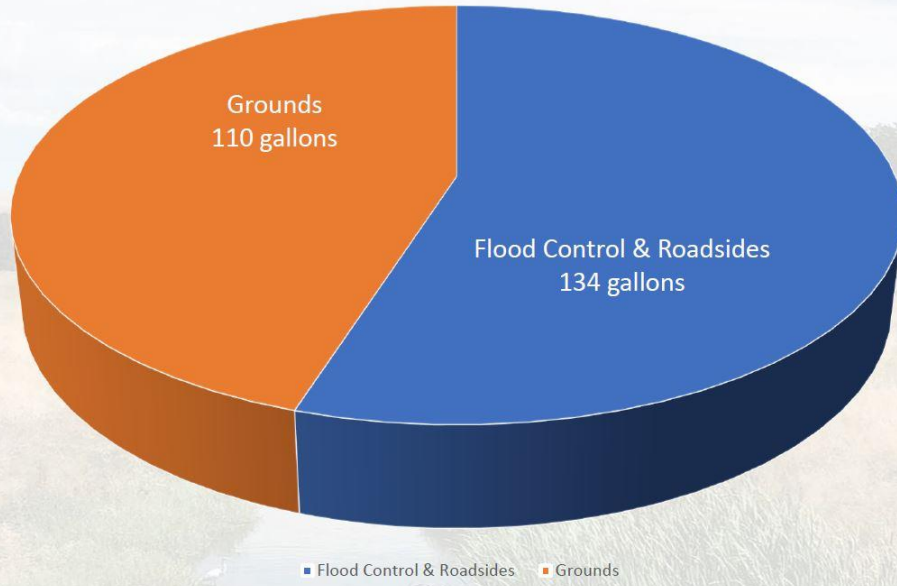
- The County allocate funding to the Agriculture Department to support ground squirrel management during spring, when fumigants such as carbon monoxide and carbon dioxide will be most effective. As a reminder, Department staff are all engaged in weed management programs in spring and unable to utilize these important alternatives to anticoagulants. This funding could be used to hire additional staff, purchase carbon monoxide fumigation equipment, hire a pest control contractor for springtime ground squirrel management, or to experiment with management protocols. The Subcommittee will work with the Department to determine the specific amounts that will required for these efforts and activities.
- The County allocate additional funding or establish alternative procedures whereby the Department of Public Works may procure a contractor to provide carbon monoxide fumigation services for ground squirrels along levees, irrigation canals, and flood-control channels during the spring. This would allow the Agriculture Department to continue focusing on their weed management programs during the spring.
- The County continue to evaluate new and existing ground squirrel management tactics, considering site requirements, efficacy, cost, impacts to the environment, and impacts to the community.
- The ground squirrel decision document be reviewed every three years, given ongoing development of new methods, changing environmental conditions, and potential changes to budgets.
- The County conduct detailed evaluations of the Public Works vegetation management programs along rights-of ways during the period October 2018 to present, given that no herbicides were applied. Have they met the control mandates set forth? Have they saved funds that may be used to evaluate and implement alternatives to herbicide applications along roadsides and flood control channels?
- The County continue to evaluate new and existing weed management tactics, considering site requirements, efficacy, cost, impacts to the environment, and impacts to the community.
- The roadside and flood control weed management documents be reviewed every three years, given ongoing development of new methods, changing environmental conditions, and potential changes to budgets.
- All IPM decision documents, once approved, be made publicly available.
- The County direct departments to annually propose and prioritize potential research projects associated with emerging and innovative strategies and tactics that will improve the County's IPM program.
- The County encourage departments to seek outside funding sources for these IPM research projects.
- The Board of Supervisors consider establishing funding to internally support such research projects.

Preliminary Review of Glyphosate Use in County Operations

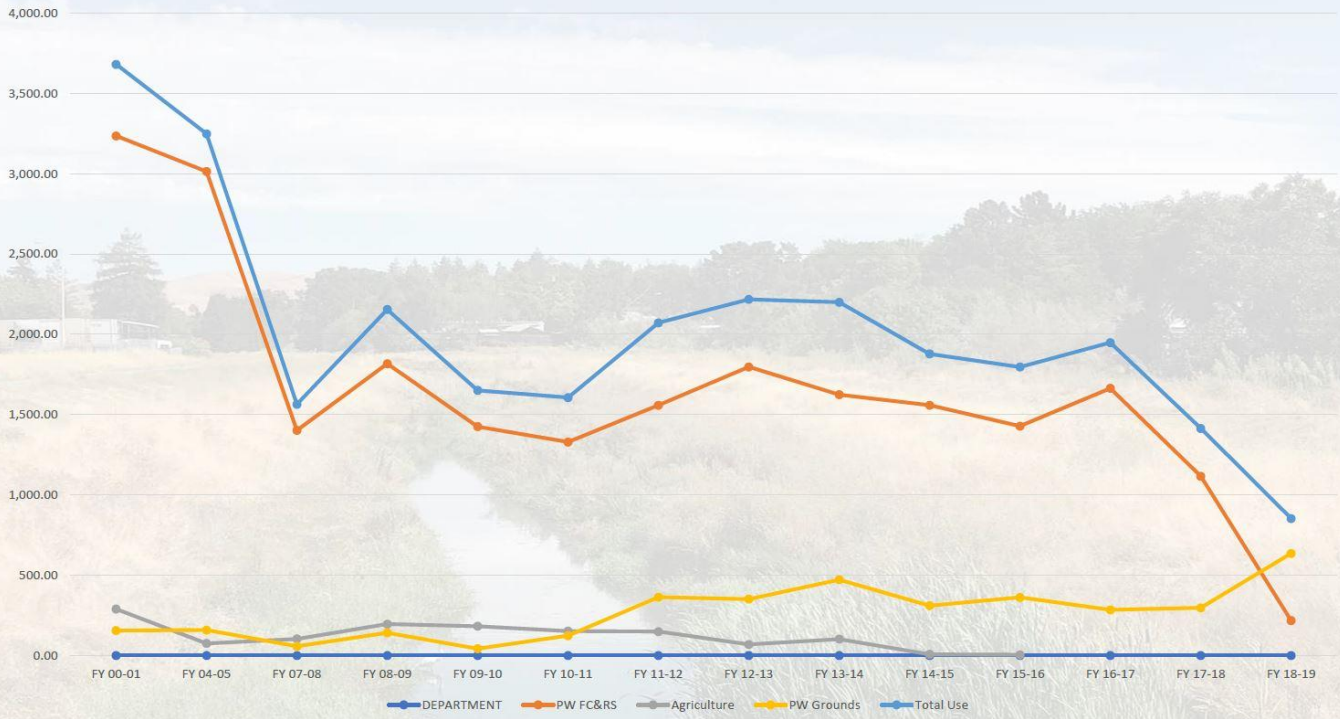
Contra Costa County Integrated Pest Management Advisory Committee
September 19, 2019



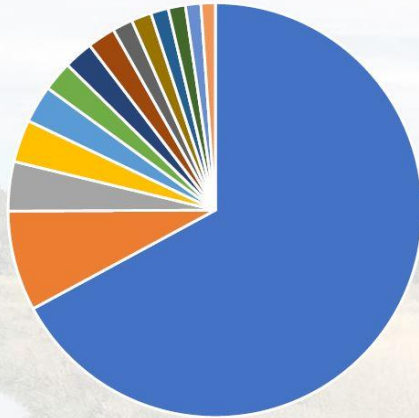
2018 Contra Costa County Glyphosate Usage



Pounds of Glyphosate Used by Fiscal Year



14 Highest Glyphosate Use Grounds Sites in 2018



- WCDF Infra Red Perimeter
- Marsh Creek Spraying
- 202 Glacier Drive
- 2467 Waterbird Way
- LI-2 Z-42 Ca Skyline
- Zone 1/2/4 Kevin Dr/Port C
- New Bettencourt
- Zone 42 Driftwood Drive
- 2530 Arnold Drive
- Parker Ave Medians
- 2311 Loveridge Road
- Seabreeze New
- 2500 Alhambra Ave
- John Glenn

Location	Total a.i. (lb)	Total Gal.	Total fl. Oz.	January	February	March	April	May	June	July	August	September	October	November	December
WCDF Infra Red Perimeter	301.4553467	60.125	7696				320	320	400	576	5696	384			
Marsh Creek Spraying	35.09667238	7	896				320				576				
202 Glacier Drive	17.29372863	3.44921875	441.5	21	22	6	89.5		48	127	128				
2467 Waterbird Way	14.88474945	2.96875	380	18	28	6	64	100	64	100					
Lt-2 Z-42 Ca Skyline	13.12208175	2.6171875	335		22	9	72	32							
Zone 1/2/4 Kevin Dr/Port C	10.4976654	2.09375	268	150	9		100								
New Bettencourt	10.22347265	2.0390625	261	45	63	27	54	27	18		9				18
Zone 42 Driftwood Drive	9.79259832	1.953125	250				200	50							
2530 Arnold Drive	7.129011577	1.421875	182	24	24		50	9		75					
Porter Ave Medians	7.050670791	1.40625	180	40	40	70			50						20
2311 Loveridge Road	6.188922138	1.234375	158	77	18	18	18	18	9						
Seabreeze New	6.032240565	1.203125	154	36	109									9	
2500 Alhambra Ave	5.405514273	1.078125	138	36	9	45	30	18							
John Glenn	5.01381034	1	128								128				
1980 Muir Rd.	3.995380115	0.796875	102	6				96							
4545 Delta Fair Blvd.	3.995380115	0.796875	102	59	18		9	16							
Camino Tassajara Medians	3.995380115	0.796875	102	9	18		9	45	3		9				
3068 Grant Street	3.917039328	0.78125	100		100										
New Hidden Pond	3.682016968	0.734375	94		20		64			10					
1750 Oak Park Blvd.	3.525335395	0.703125	90	18	9		45	9	18		9				
4800 Imhoff Place	3.525335395	0.703125	90	18	18	18	18	9	18		9				
Viewpoint New	3.368653822	0.671875	86	68			18								
SVR & Green Valley Road	3.349068626	0.66796875	85.5	27	27	27	27	4.5							
1000 Ward St.	3.251142642	0.6484375	83	9	18	18	9			25				4	
5555 Giant Hwy	3.211972249	0.640625	82		30	22	10						20		
255 Glacier Drive	3.172801856	0.6328125	81	3	21	9			48						
1960 Muir Road	3.114046266	0.62109375	79.5	30	18		22.5	9							
13601 San Pablo Ave WCH	2.976949889	0.59375	76		30		40		6						
847 C Brookside Drive	2.820268316	0.5625	72			20									52
4549 Delta Fair Blvd.	2.663586743	0.53125	68	34	18			16							
847 A Brookside Drive	2.546075563	0.5078125	65		5	20								40	
Comm-Kregor Peak	2.369808794	0.47265625	60.5		16		32				12.5				
151 Linus Pauling Drive	2.350223597	0.46875	60		30		20			10					
Spears Circle Park	2.350223597	0.46875	60		15	15				10				20	
1203 W 10th Street	1.958519664	0.390625	50		50										
Kensington New	1.958519664	0.390625	50		30	20									
Comm-Bald Peak Radio Site	1.743082501	0.34765625	44.5				32				12.5				
Comm-Nadeen Peak	1.743082501	0.34765625	44.5		32						12.5				
Comm-Turquoise Radio Site	1.743082501	0.34765625	44.5				32				12.5				
2047 Arnold Ind Wy Ste. A B	1.645156518	0.328125	42		10				32						
100 38th Street	1.566815731	0.3125	40		30	30	10		32						
4491 Blixier Road, Byron	1.253452585	0.25	32						32						
Glacier Drive	1.253452585	0.25	32		32										
4785 Blum Rd. Building D	1.214282192	0.2421875	31		28	3									
2935 Pinole Valley Road	1.175111798	0.234375	30		20	5			5						
Comm-Shady Brook Radio Site	1.116356209	0.22265625	28.5		16						12.5				
New Marck Road	1.057600619	0.2109375	27				9	9	9						
210 O'Hara Ave & 118 E. Ru	0.979259832	0.1953125	25		25										
501 W 18th	0.979259832	0.1953125	25	25											
New Alamo Country	0.940089439	0.1875	24						18	6					
1650 Cavallo Road	0.822578259	0.1640625	21			9		9						3	

